

Amendments to the Specification:

In paragraph [0009]:

Spatially predicted coded block patterns have been proposed as an improvement to the conventional intraframe coding standards. In a spatially predicted based intraframe, a 5 macroblock includes four luminance blocks and an associated spatially predicted coded block pattern. The coded block pattern has four bits used for indicating which of the luminance blocks in the macroblock are coded in the bitstream using DCT encoding. To encode a spatially predicted coded block pattern, prediction bits for each bit in the coded block pattern are calculated, each bit in the coded block pattern is XORed with its 10 prediction bit, and the resulting bit pattern ~~form~~s forms a spatially predicted coded block pattern. A lookup table is used to convert the ~~convert the~~ spatially the spatially predicted coded block pattern to ~~a variable~~ a variable length code for transmission or storage. The reverse procedure is used to decode the variable length code. A lookup table is used ~~to convert to convert~~ the variable length code to ~~as~~ a spatially predicted coded 15 block pattern. Prediction bits are calculated for each bit in the spatially predicted coded block pattern and each bit in the spatially predicted coded block pattern is then XORed with its prediction bit.

In paragraph [0017]:

20 It is therefore a primary objective of the claimed invention to provide a method and apparatus for the parallel calculation of the prediction ~~bits in~~ bits in a spatially predicted coded block pattern, to solve the above-mentioned problems.

In paragraph [0020]:

25 It is an advantage of the claimed invention apparatus that after a first clock cycle, the

bits in the storage device ~~an~~ can be shifted and the first circuit and the second circuit can ~~be reused~~ be reused for setting the A1 bit and the A3 bit respectively in a second clock cycle.

5 In paragraph [0060]:

In contrast to the prior art, the present invention calculates the prediction bits ~~in~~ bits in a spatially predicted coded block pattern in parallel so that the calculation time is reduced and the number of clock cycles needed to complete the calculation is reduced. By splitting the calculation into two clock cycles, the present invention calculates two of the 10 prediction bits for a coded block pattern in parallel allowing a much higher system clock rate than the prior art and a more efficient solution with minimal components. With the addition of a NOR-gate, a significant performance gain of 37.5% is achieved by eliminating the dependency of the A2 bit on the A0 bit during the first clock cycle and the dependency of the A3 bit on the A1 bit during the second clock cycle. Similarly, if the 15 calculation is executed in a single clock cycle, the present invention calculates the four prediction bits in parallel allowing a high system clock rate and an efficient solution with minimal components. The dependency of the A2 bit on the A0 bit and A3 bit on the A1 bit can be eliminated by adding two NOR-gates to provide a 10% increase in speed for the A3 bit and a 37.5% increase in speed for the A3 bit.

20

In the abstract:

A storage device stores rows of bits including a D0 bit, an X0 bit, an X1 bit, a Y0 bit, a Y1 bit and a spatially predicted coded block pattern having an A0 bit, an A1 bit, an A2 bit, and an A3 bit. A first circuit is connected to the storage device for setting the A0 bit. A 25 second ~~circuit~~ ~~is~~ circuit is connected to the storage device for setting the A2 bit and operates in parallel to the first circuit. In a second clock cycle, the bits in the storage device are shifted and the first circuit and the second circuit are reused to calculate the A1

Appl. No. 10/604,567
Amdt. dated April 03, 2007
Reply to Office action of January 04, 2007

bit and the A2 bit in parallel. Alternatively, a third circuit and a fourth circuit can be connected to the storage device to calculate the A1 bit and the A2 bit in parallel during the first clock cycle.